Genesis Case Study #:	J5332-001
Application:	Robotic Lathe Tending
Market Segment:	Automation / Agricultural
Product:	Drive Train Components
Cycletime:	< 60 Seconds

Summary

Pinion gears are randomly loaded onto an inbound conveyor by an operator. A stationary-mounted Fanuc iRVision/2D vision package is used to identify the part model, part location and orientation using the gear teeth as the reference feature. A Fanuc M170iC robot picks the gear from the conveyor using the offset data from the vision package. The robot enters the Okuma L-470 lathe through a Genesis-supplied "moonroof" and unloads a finished part. The gripper indexes, and a new part is loaded into the lathe chuck meshing the gear teeth with the chuck nest. The gear is then robotically loaded into a parts washer and then onto an outbound conveyor.

Project Challenges

- The system was to be capable of handling three part families (16 part numbers) with minimal changeover.
- Conveyors must accommodate parts for 45 minutes of unattended production with minimal footprint.
- Okuma Thinc control panel needed to be fully accessible during production without interrupting production cycle.
- Uptime of 95%.

Genesis Solution

- Single-robot workcell with a Fanuc M710iC/50 robot mounted on a 80" platform above the lathe
- Genesis "moonroof" installed on the top of the Okuma L-470 door
- A double-deck, 24" wide belt conveyor system with no hard tooling
- Fanuc iRVision/2D package with Red LED lighting system
- Dual 3-jaw grippers with 180 degree indexe
- Fanuc-based Ethernet I/P cell communications
- 10" Quickpanel Operator Interface. (HMI)
- Integrated 12' safety enclosure
- Re-grip station
- Integration with customer-supplied Okuma lathe and parts washer.